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(54) Title: SELECTIVE INCORPORATION OF 5-HYDROXYTRYPTOPHAN INTO PROTEINS IN MAMMALIAN CELLS

(57) Abstract: This invention provides methods and compositions for incorporation of an unnatural amino acid into a peptide using an orthogonal aminoacyl tRNA synthetase/tRNA pair. In particular, an orthogonal pair is provided to incorporate 5-hydroxy-L-tryptophan in a position encoded by an opal mutation.